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Average Maximum Actual Soil Moisture Deficit in Summer

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The yearly max of SMD was taken to be the largest of the deficits at the end of the summer months April to September - clearly an underestimate, but the error is likely to be small.

The 1941-1970 data was analysed in quartiles and median values for the Tech Bull 24 stations.

If R_1 = annual average rainfall in millimetres
R^1 = summer 6 month average rainfall in millimetres
P = summer 6 month PT in inches

and deficit is in inches, then:-

Area	Formulae	Multiple Regression
North West		
Higher Quartile	$0.275P-0.00135R + 0.33$	0.97
Median	$0.31P-0.0018R - 0.77$	0.98
Lower Quartile	$0.21P-0.0036R + 1.88$	0.97
North East		
Higher Quartile	$0.35P-0.0024R + 0.15$	0.94
Median	$0.31P-0.00365R + 0.93$	0.94
Lower Quartile	$0.3P-0.0036R + 0.34$	0.96
Midlands		
Higher Quartile	$0.235P-0.0027R + 2.26$	0.84
Median	$0.44P-0.004R - 0.99$	0.92
Lower Quartile	$0.235P-0.0048R + 2.17$	0.84
East		
Higher Quartile	$0.135P-0.0049R^1 + 3.91$	0.78
Median	$0.24P-0.0065R^1 + 2.1$	0.85
Lower Quartile	$0.57P-0.0125R^1 - 2.71$	0.88
South East		
Higher Quartile	$0.175P-0.0023R^1 + 2.41$	0.90
Median	$0.13P-0.0067R^1 + 4.12$	0.90
Lower Quartile	$0.28P-0.017R + 3.78$	0.86
South West		
Higher Quartile	$0.39P-0.0025R - 0.35$	0.96
Median	$0.54P-0.0022R - 3.79$	0.89
Lower Quartile	$0.58P-0.0027R - 5.0$	0.82
Wales		
Higher Quartile	$0.425P-0.0023R - 1.12$	0.88
Median	$0.205P-0.0033R + 2.87$	0.95
Lower Quartile	$0.205P-0.004R + 2.73$	0.93

P.T.O.

Any comments or suggestions on this paper should be referred to the author.

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